**WHAT IS CLAIMED IS:**

1. A method for detecting defects in a material, comprising:

obtaining an image of at least a portion of a material's surface;

converting the image into an intensity profile; and

determining a defect in the material's surface from the intensity profile.

2. The method as recited in Claim 1 wherein obtaining an image includes obtaining an electron image.

3. The method as recited in Claim 2 wherein obtaining an electron image includes obtaining an electron image using a scanning electron microscope.

4. The method as recited in Claim 1 further including selecting an intensity line profile from the intensity profile.

5. The method as recited in Claim 4 wherein determining a defect in the material's surface from the intensity profile includes determining a defect in the material's surface from the intensity line profile.

6. The method as recited in Claim 5 further including selecting a plurality of intensity line profiles from the intensity profile and determining a defect in each of the plurality of intensity line profiles.

7. The method as recited in Claim 1 further including selecting a plurality of intensity line profiles from the intensity profile and determining a defect density of the plurality of intensity line profiles.

8. The method as recited in Claim 1 wherein determining a defect of the material's surface includes determining a total number of intensity pixels.

9. The method as recited in Claim 8 wherein determining a total number of intensity pixels includes determining a number of background intensity pixels and a number of defect intensity pixels.

10. The method as recited in Claim 9 further including determining a defect density by dividing the number of defect intensity pixels by the total number of intensity pixels.

11. The method as recited in Claim 9 wherein the total number of intensity pixels comprise a histogram and the background intensity pixels are inside a desired sigma value and the defect intensity pixels are outside the desired sigma value.

12. The method as recited in Claim 11 wherein the desired sigma value is greater than about 2 sigma.

13. The method as recited in Claim 12 wherein the desired sigma value is greater than about 4 sigma.

14. The method as recited in Claim 10 wherein the intensity profile includes a plurality of pixels and determining a defect of the material's surface further includes determining an average intensity of the plurality of pixels or determining a standard deviation of the intensity profile.

15. The method as recited in Claim 10 wherein the number of defect intensity pixels does not include the number of defect intensity pixels having an intensity greater than an average intensity.

16. The method as recited in Claim 1 wherein obtaining an image of at least a portion of a material's surface includes obtaining an image of an inner surface of a tubing located in a semiconductor wafer manufacturing facility.

17. A system for detecting defects in a material, comprising:

a first subsystem that obtains an image of at least a portion of a material's surface; and

a second subsystem that converts the image into an intensity profile and determines a defect in the material's surface from the intensity profile.

18. The system as recited in Claim 17 wherein the first subsystem includes a scanning electron microscope that obtains an electron image.

19. The system as recited in Claim 17 wherein the second subsystem includes a computer subsystem including an operator interface.

20. The system as recited in Claim 17 wherein the second subsystem selects an intensity line profile from the intensity profile.

21. The system as recited in Claim 20 wherein the second subsystem determines a defect in the material's surface from the intensity line profile.

22. The system as recited in Claim 17 wherein the second subsystem determines a total number of intensity pixels.

23. The system as recited in Claim 22 wherein the total number of intensity pixels includes a number of background intensity pixels and a number of defect intensity pixels.

24. The system as recited in Claim 23 wherein the second subsystem further determines a defect density by dividing the number of defect intensity pixels by the total number of intensity pixels.

25. The system as recited in Claim 23 wherein the total number of intensity pixels comprise a histogram and the background intensity pixels are inside a desired sigma value and the defect intensity pixels are outside the desired sigma value.

26. The system as recited in Claim 25 wherein the desired sigma value is greater than about 2 sigma.

27. The system as recited in Claim 26 wherein the desired sigma value is greater than about 4 sigma.

28. The system as recited in Claim 17 wherein the material is a tubing located in a semiconductor wafer manufacturing facility.

29. A method of using a system for detecting defects in a material, comprising:

detecting defects in a material, including;

obtaining an image of the material's surface;

converting the image into an intensity profile; and

determining defects in the material's surface from the intensity profile;

rejecting the material based upon a number of the defects in the material's surface.

30. The method as recited in Claim 29 wherein the material is a subset of a batch of the material and rejecting includes rejecting the batch of the material.